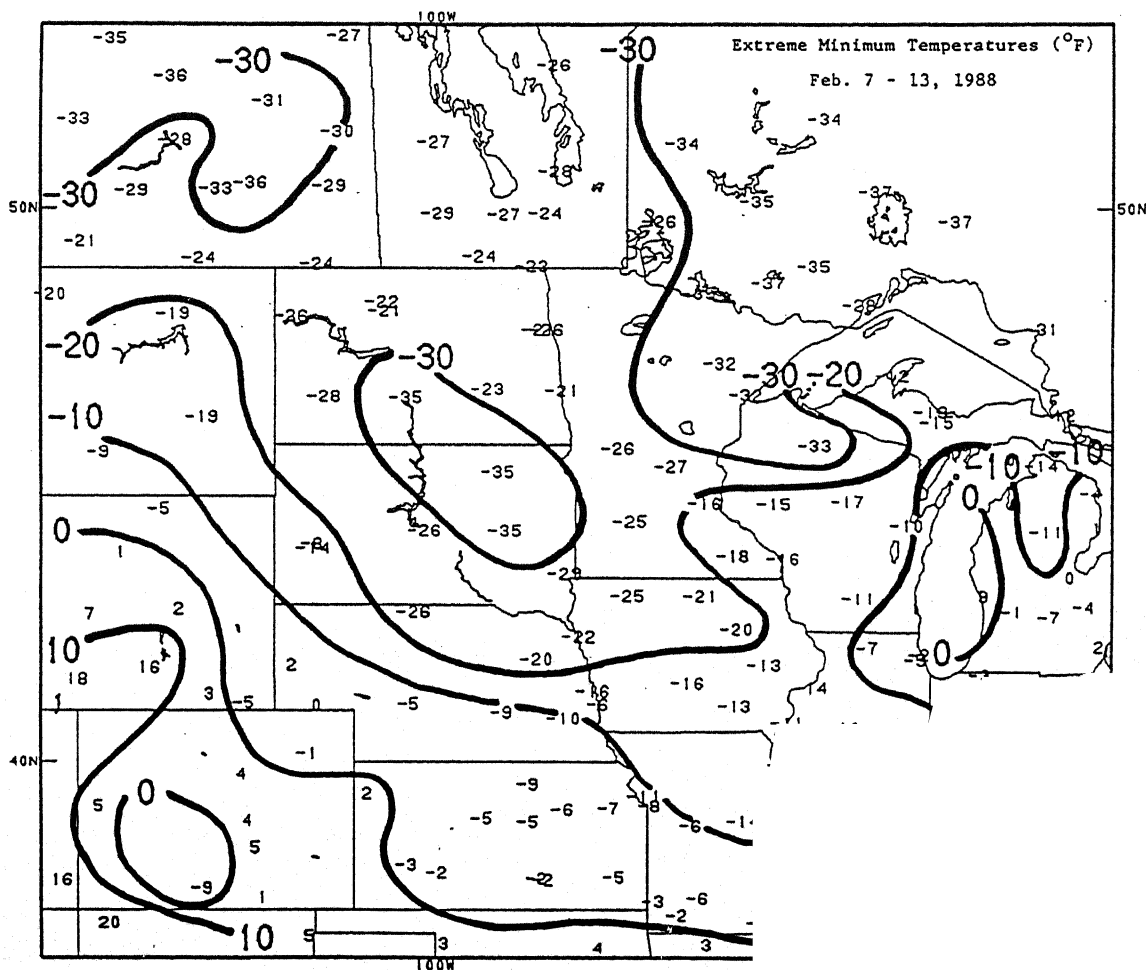


WEEKLY CLIMATE BULLETIN

No. 88/07

Washington, DC

February 13, 1988



FOR THE SECOND CONSECUTIVE WEEK, BITTER
COVERED MUCH OF THE NORTHERN GREAT PLAINS

NOAA - NATIONAL WEATHER SERVICE - NATION

WEEKLY CLIMATE BULLETIN

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This Bulletin is issued weekly by the Climate Analysis Center and is designed to indicate, in a brief, concise format, current surface climatic conditions in the United States and around the world. The Bulletin contains:

- Highlights of major global climatic events and anomalies.
- U.S. climatic conditions for the previous week.
- U.S. apparent temperatures (summer) or wind chill (winter).
- Global two-week temperature anomalies.
- Global four-week precipitation anomalies.
- Global monthly temperature and precipitation anomalies.
- Global three-month precipitation anomalies (once a month).
- Global twelve-month precipitation anomalies (every 3 months).
- Global temperature anomalies for winter and summer seasons.
- Special climate summaries, explanations, etc. (as appropriate).

Most analyses contained in this Bulletin are based on preliminary, unchecked data received at the Center via the Global Telecommunication System. Similar analyses based on final, checked data are likely to differ to some extent from those presented here.

To receive copies of the Bulletin or change mailing address, write to:

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Attention: Weekly Climate Bulletin
NOAA, National Weather Service
Washington, DC 20233
Phone: (301)-763-8071

IMPORTANT NOTICE February 13, 1988

The Weekly Climate Bulletin dated February 6, 1988 contained erroneous information. The 2-Week Global Temperature Anomalies map (page 5) was actually the 4-Week Global Precipitation Anomalies map, while the 4-Week Global Precipitation Anomalies map (page 6) was actually the 2-Week Global Temperature Anomalies map with the wrong time period (should have been dated Jan. 24 - Feb. 6, 1988. The CAC apologizes for any problems the errors may have caused the reader.

GLOBAL HIGHLIGHTS

MAJOR CLIMATIC EVENTS AND ANOMALIES AS OF FEBRUARY 13, 1988
(Approximate duration of anomalies is in brackets.)

1. CANADA AND UNITED STATES: AREA UNUSUALLY COLD.

Temperatures averaged as much as 9.8°C (17.6°F) below normal last week as bitterly cold conditions spread across southeastern and south central Canada and the north central United States [3 weeks].

2. AUSTRALIA: WARM, DRY CONDITIONS DIMINISH.

Heavy precipitation, up to 255.6 mm (10.06 inches), eased the dryness in north central and northeastern Australia last week. Temperatures were generally less than 3.3°C (5.9°F) above normal [Ending at 6 weeks].

3. EUROPE AND NORTH AFRICA: WARM CONDITIONS PERSIST.

Temperatures were as much as 11.6°C (20.9°F) above normal in Sweden as unusually mild conditions continue in much of Europe [7 weeks].

4. SOUTH AFRICA: AREA REMAINS UNUSUALLY WARM AND DRY.

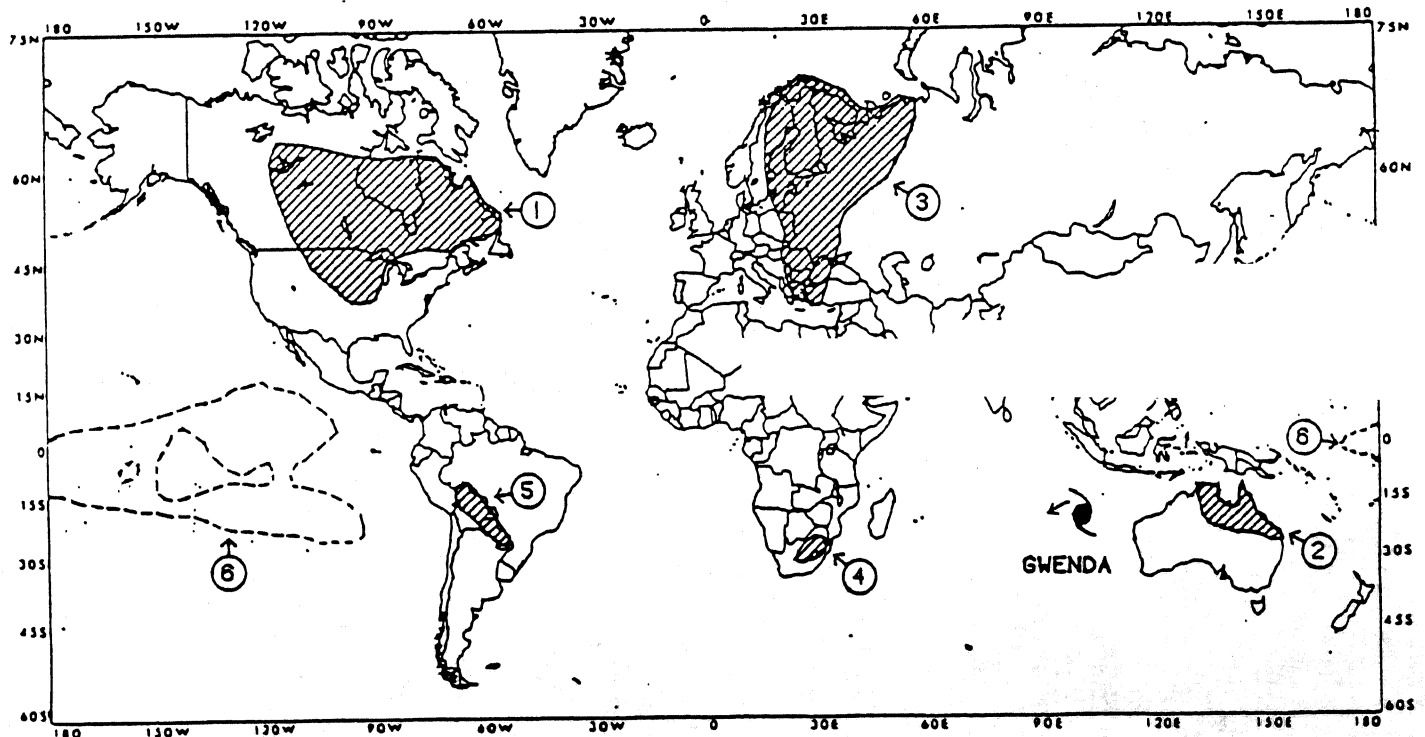
Unusually dry conditions in South Africa were aggravated by temperatures averaging up to 5.8°C (10.4°F) above normal. Little or no rain, less than 11.2 mm (0.44 inch), fell in the area last week [6 weeks].

5. BOLIVIA AND PARAGUAY: DRY CONDITIONS CONTINUE.

Unusually dry conditions persist in Bolivia and Paraguay as light precipitation, up to 10 mm (0.39 inches), was reported last week [8 weeks].

6. CENTRAL AND EASTERN TROPICAL PACIFIC: REFER TO SPECIAL SUMMARY ON EL NINO/SOUTHERN OSCILLATION (ENSO) ADVISORY.

A monthly update, covering January 1988, is attached.



Approximate locations of the major anomalies and events described above are shown on this map. See the other world maps in this Bulletin for current two-week temperature anomalies, four-week precipitation anomalies, and (occasionally) longer-term anomalies.

U.S. WEEKLY WEATHER HIGHLIGHTS

FOR THE WEEK ENDING MIDNIGHT FEBRUARY 13, 1988

Heavy precipitation was confined to the coastal regions of the Pacific Northwest and from the Delmarva peninsula northward to Maine (see Table 1). Light to moderate precipitation fell in interior Oregon and Washington, in portions of the northern Great Plains, along parts of the Texas and Louisiana coasts, in the southern half of Florida, throughout much of the Ohio River Valley, and from the Carolinas northeastward into Maine. Little or no precipitation was measured in the Southwest and Great Basin, the southern half of the Great Plains, the upper Midwest, in eastern Texas and northern Louisiana, and from northwestern Florida northward into western Virginia.

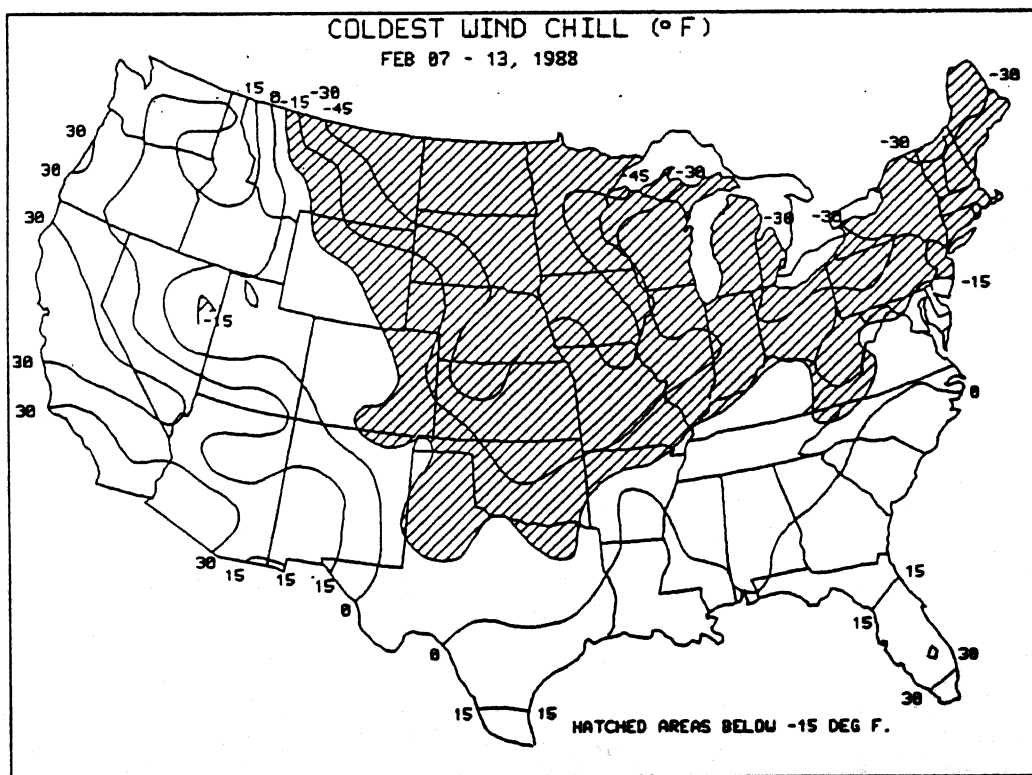
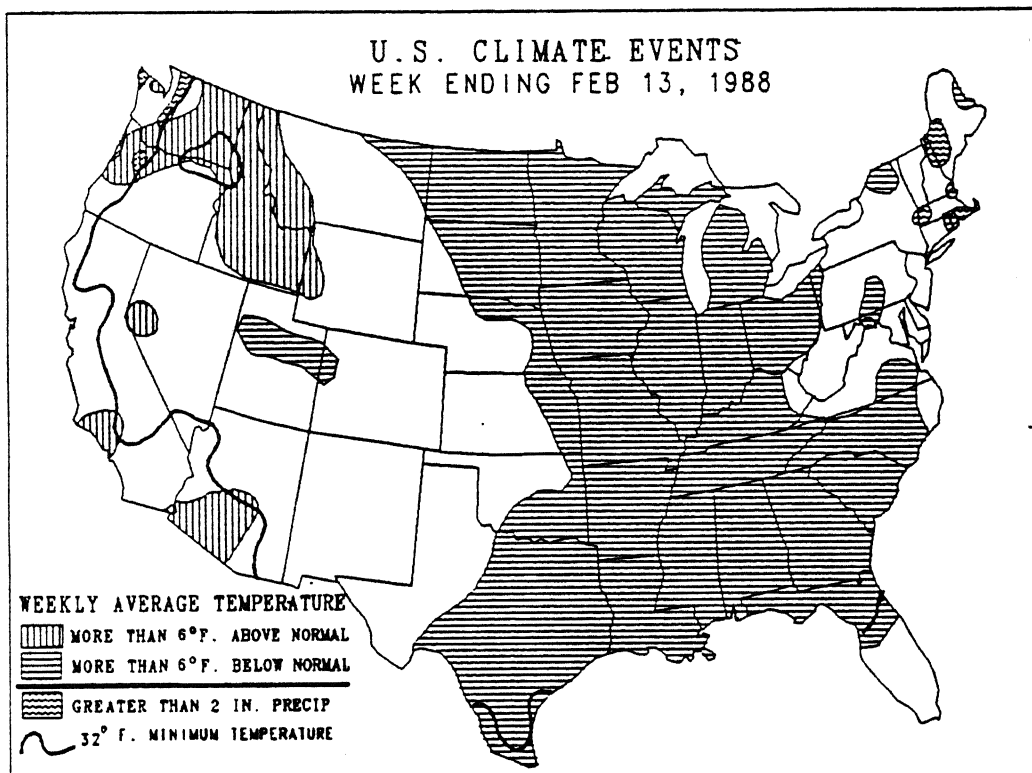
Arctic air spread across the eastern two-thirds of the country last week as minimum temperatures fell below -20°F for the second consecutive week in parts of the northern Great Plains and upper Midwest (see front cover). Temperatures below freezing penetrated as far south as the Gulf of Mexico and central Florida. The largest departures below normal (between -10 to -18°F) were concentrated in the Midwest and the Southeast (see Table 2). In contrast, mild conditions prevailed in the West. Departures averaging between 7 - 11°F above normal were common in western Montana, Idaho, eastern Washington, northern Oregon, and southern California. Much of Alaska continues to have a mild winter as last week's temperatures averaged above normal, especially along the western coast.

TABLE 1. Selected cities with more than two inches of precipitation for the week.

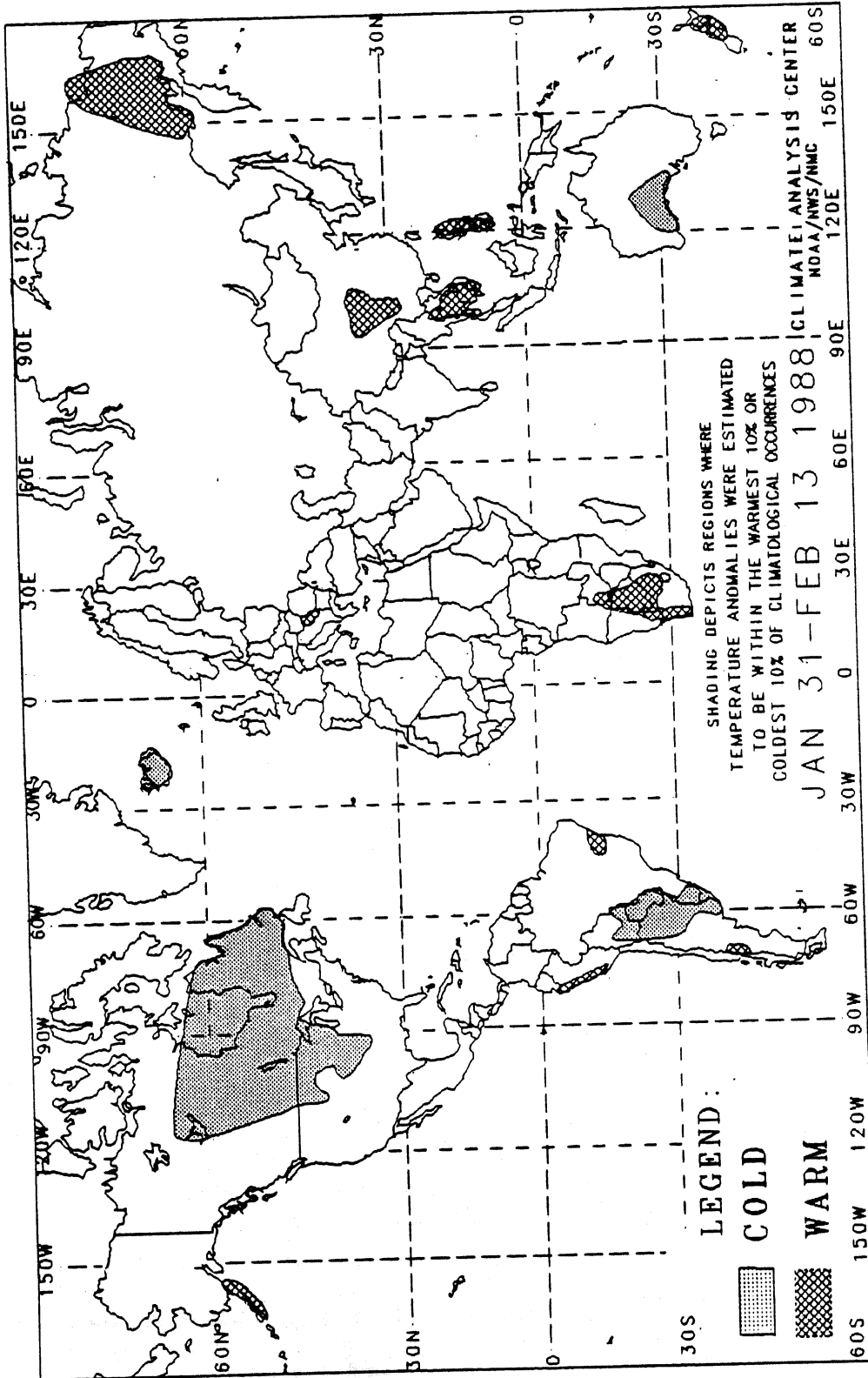
Quillayute, WA	3.39	Mt. Washington, NH	2.68
Dover AFB, DE	3.05	Providence, RI	2.31
Hilo, HI	2.76	Salisbury, MD	2.27
Patuxent River NAS, MD	2.72	Kodiak, AK	2.11

TABLE 2. Selected cities with temperatures averaging higher than 8°F above or lower than 13°F below normal for the week.

Iliamna, AK	+19	Duluth, MN	-18
Nome, AK	+13	Park Falls, WI	-17
Kotzebue, AK	+12	Cedar Rapids, IA	-16
Unalakleet, AK	+12	Mason City, IA	-16
Bethel, AK	+11	Waterloo, IA	-16
Blue Canyon, CA	+11	Decatur, IL	-15
Victorville, CA	+11	International Falls, MN	-15
Butte, MT	+11	St. Cloud, MN	-15
Bozeman, MT	+10	Champaign/Urbana, IL	-14
Walla Walla, WA	+10	Alexandria, MN	-14
Aniak, AK	+9	Minneapolis, MN	-14
Homer, AK	+9	Rochester, MN	-14
St. Paul Island, AK	+9	Warroad, MN	-14
Burbank/Hollywood, CA	+9	Columbia, MO	-14
Missoula, MT	+9	Kansas City, MO	-14
Redmond, OR	+9	Huron, SD	-14
		Pickstown, SD	-14
		La Crosse, WI	-14



Bitterly cold weather persisted for the second straight week as last week's wind chills dropped below -45°F over much of the north-central United States and reached as far south as Kansas and Missouri.

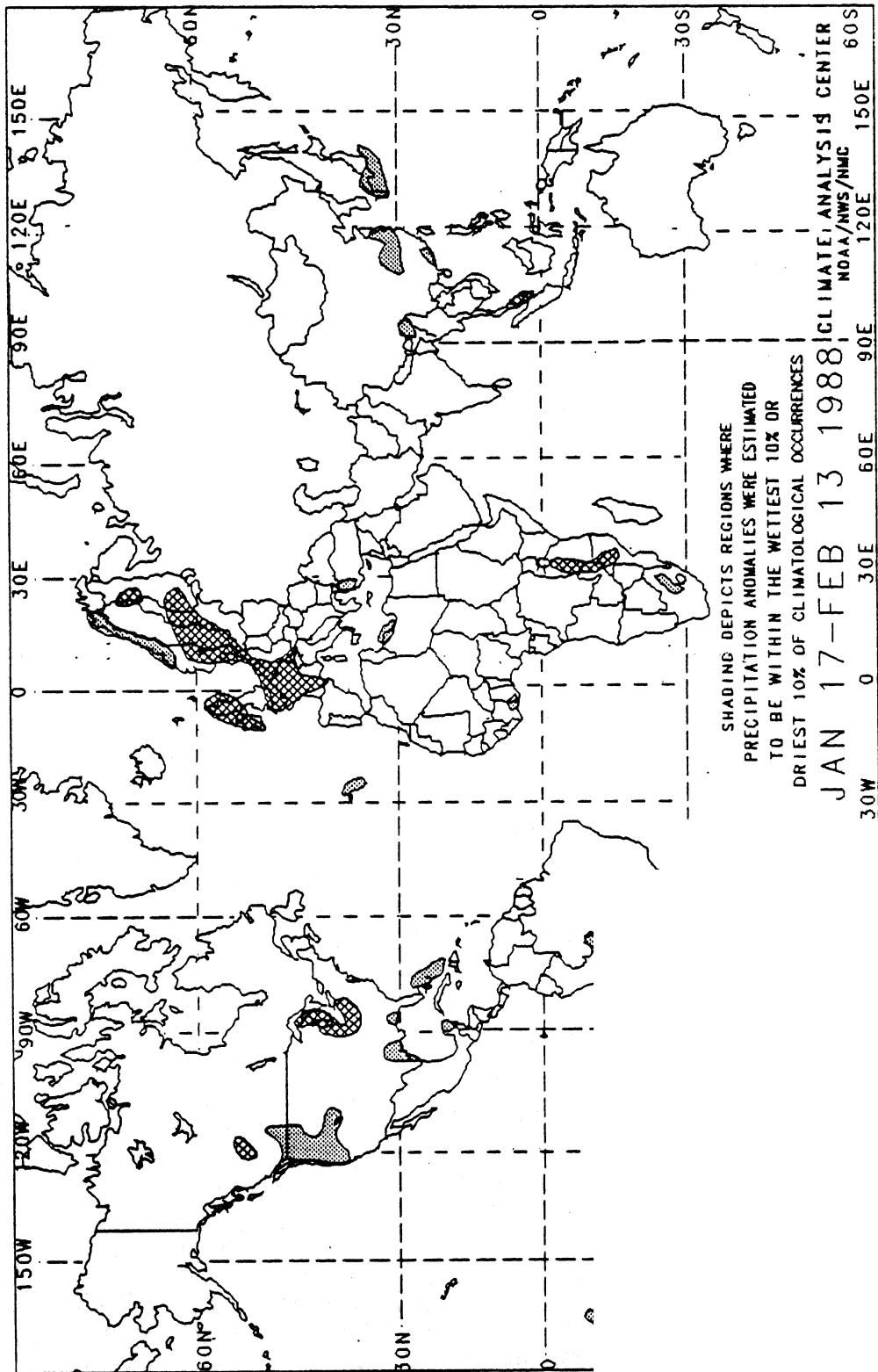


The anomalies on this chart are based on approximately 2500 observing stations for which at least 13 days of temperature observations were received from synoptic reports. Many stations do not operate on a twenty-four hour basis so many night time observations are not taken. As a result of these missing observations the estimated minimum temperature may have a warm bias. This in turn may have resulted in an overestimation of the extent of some warm anomalies.

Temperature anomalies are not depicted unless the magnitude of temperature departures from normal exceeds 1.5°C.

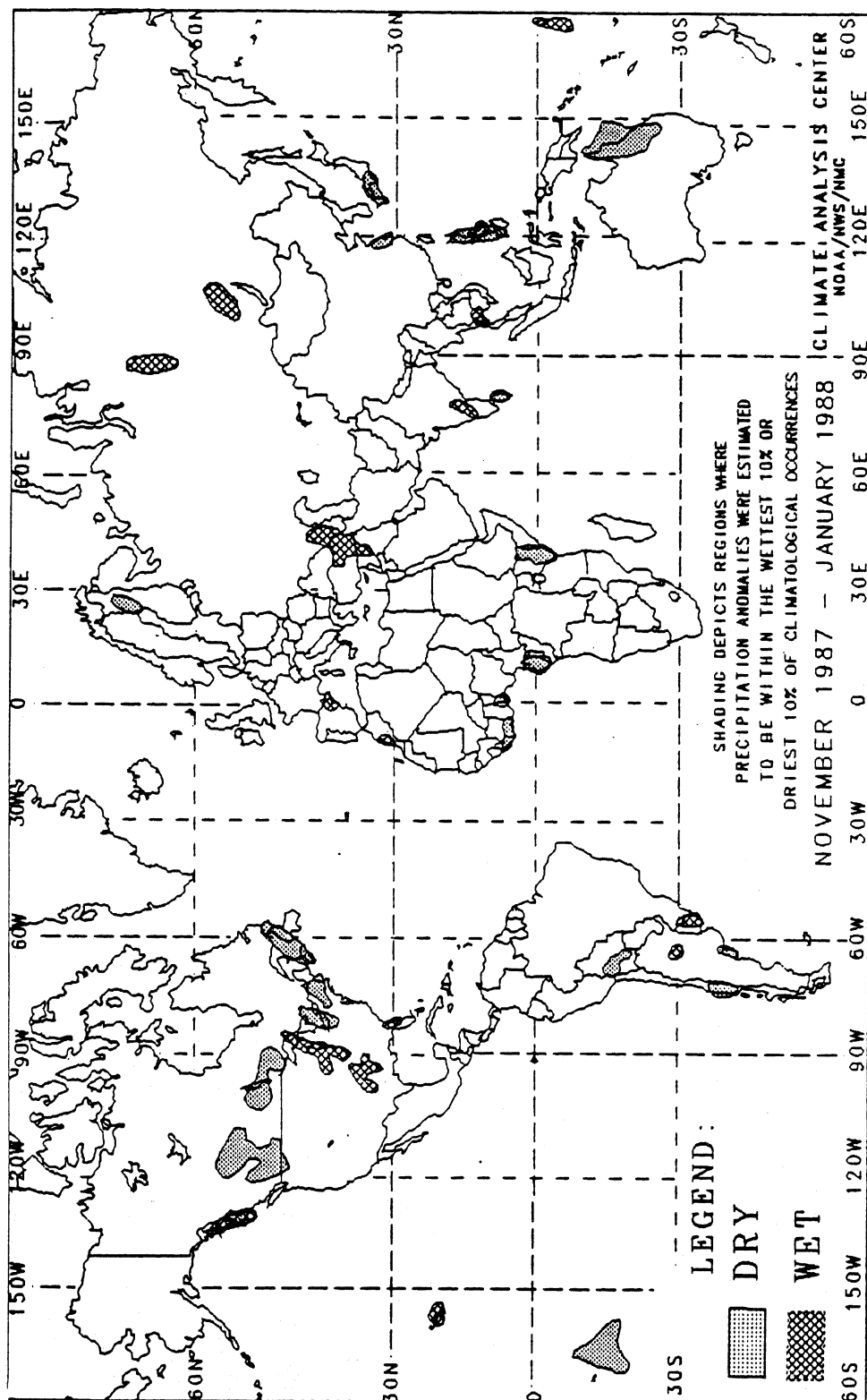
In some regions, insufficient data exist to determine the magnitude of anomalies. These regions are located in parts of tropical Africa, southwestern Asia, interior equatorial South America, and along the Arctic Coast. Either current data are too sparse or incomplete for analysis, or historical data are insufficient for determining percentiles, or both. No attempt has been made to estimate the magnitude of anomalies in such regions.

The chart shows general areas of two week temperature anomalies. Caution must be used in relating it to local conditions, especially in mountainous regions.



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The chart shows general areas of four week precipitation anomalies. Caution must be used in relating it to local conditions, especially in mountainous regions.



The anomalies on this chart are based on approximately 2500 observing stations for which at least 81 days of precipitation observations (including zero amounts) were received or estimated from synoptic reports. As a result of both missing observations and the use of estimates from synoptic reports (which are conservative), a dry bias in the total precipitation amount may exist for some stations used in this analysis. This in turn may have resulted in an overestimation of the extent of some dry anomalies.

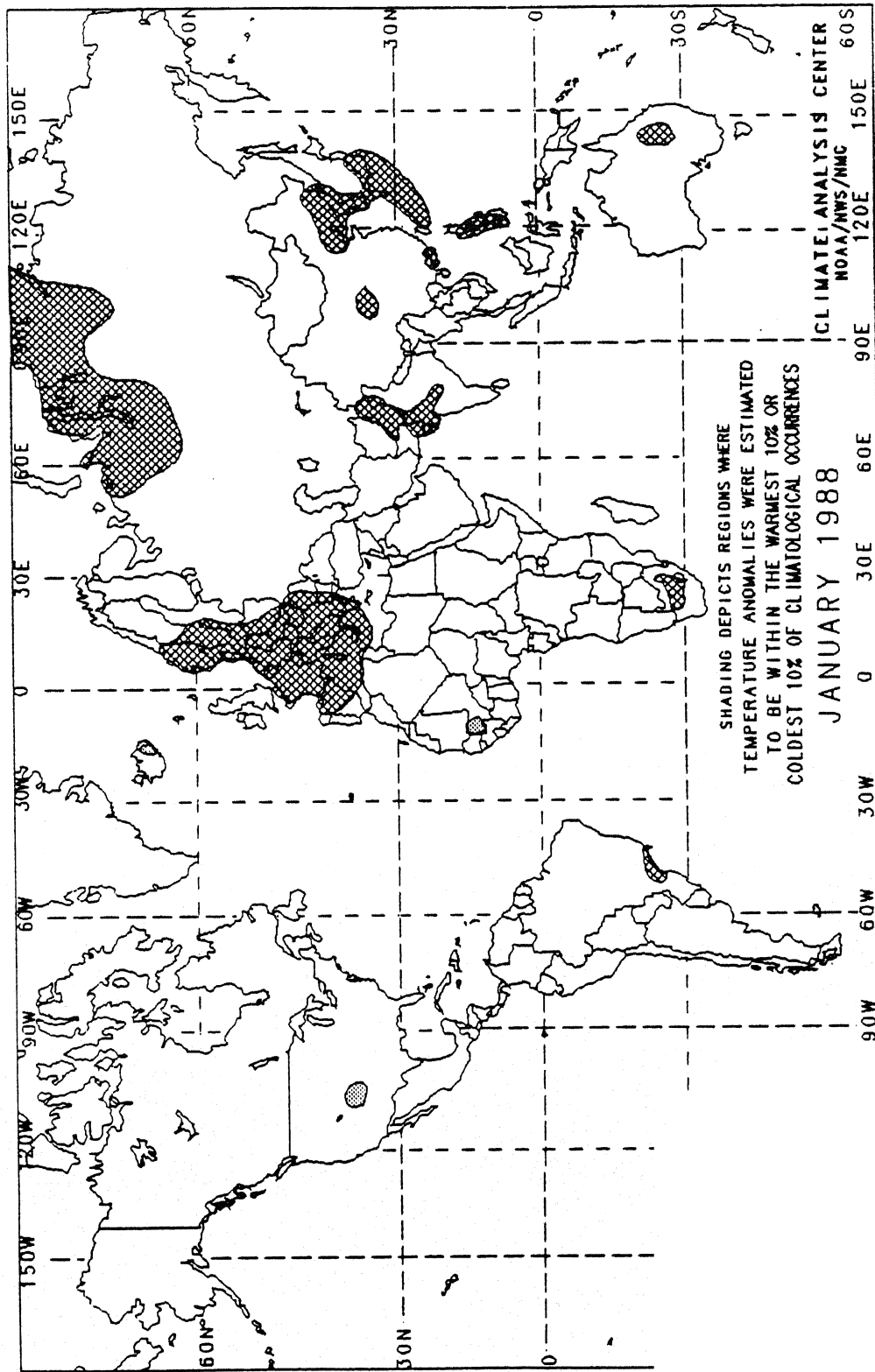
In climatologically arid regions where normal precipitation for the three month period is less than 50 mm, dry anomalies are not depicted. Additionally, wet anomalies for such arid regions are not depicted unless the total three month precipitation exceeds 125 mm.

In some regions, insufficient data exist to determine the magnitude of anomalies. These regions are located in parts of tropical Africa, southwestern Asia, interior equatorial South America, and along the Arctic Coast. Either current data are too sparse or incomplete for analysis, or historical data are insufficient for determining percentiles, or both. No attempt has been made to estimate the magnitude of anomalies in such regions.

The chart shows general areas of three month precipitation anomalies. Caution must be used in relating it to local conditions, especially in mountainous regions.

GLOBAL TEMPERATURE ANOMALIES

Monthly



Based on approximately 2500
16 days of temperature
data. Many stations do not
report time observations are
based on the estimated
data. This in turn may have
some warm anomalies.

unless the magnitude of
anomalies is large.

In some regions, insufficient data exist to determine the magnitude
of anomalies. These regions are located in parts of tropical Africa,
southwestern Asia, interior equatorial South America, and along the
Arctic Coast. Either current data are too sparse or incomplete for
analysis, or historical data are insufficient for determining
percentiles, or both. No attempt has been made to estimate the
magnitude of anomalies in such regions.

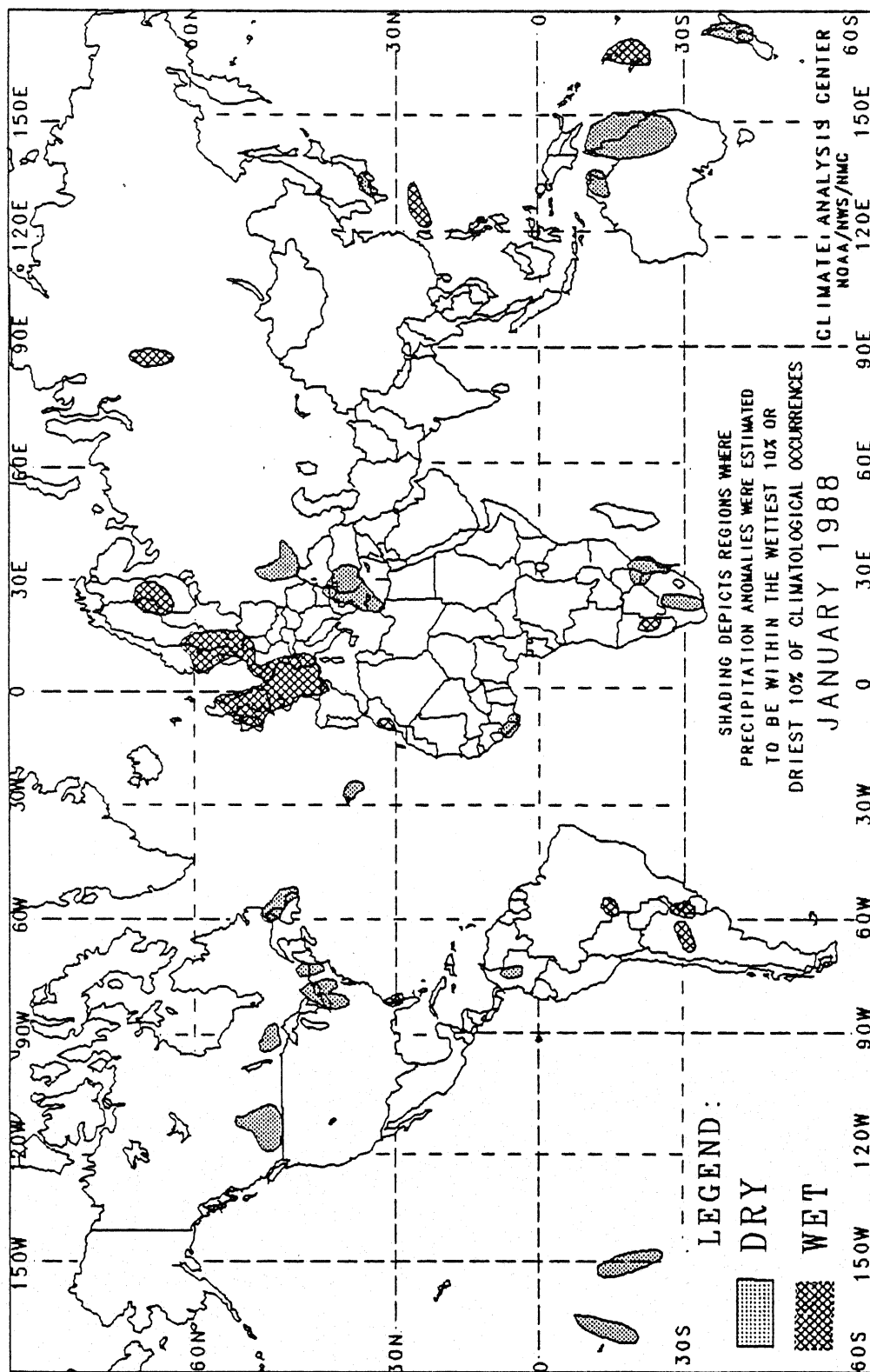
The chart shows general areas of one month temperature anomalies.
Caution must be used in relating it to local conditions, especially in
mountainous regions.

PRINCIPAL TEMPERATURE ANOMALIES - JANUARY 1988

REGIONS AFFECTED	TEMPERATURE AVERAGE (C)	DEPARTURE FROM NORMAL (C)	COMMENTS
SOUTHERN COLORADO	-7 TO -15	-5 TO -6	COLD - 2 TO 8 WEEKS
SOUTHEASTERN BRAZIL	+22 TO +29	+2 TO +4	VERY WARM SECOND HALF OF JANUARY
SOUTHEASTERN ICELAND	-3 TO -2	AROUND -3	VERY COLD SECOND HALF OF JANUARY
EUROPE AND NORTHERN AFRICA	-7 TO +14	+2 TO +9	MILD - 2 TO 8 WEEKS
EXTREME WESTERN MALI	+23 TO +24	AROUND -2	COOL - 3 TO 6 WEEKS
SOUTH AFRICA	+21 TO +29	+2 TO +3	WARM - 5 WEEKS
NORTHWESTERN SIBERIA	-34 TO -16	+3 TO +7	VERY MILD EARLY AND LATE IN JANUARY
INDIA AND PAKISTAN	+5 TO +23	+2 TO +3	MILD - 5 TO 8 WEEKS
CENTRAL CHINA	-10 TO -4	+3 TO +5	MILD - 2 TO 9 WEEKS
JAPAN, KOREA, AND NORTHEASTERN CHINA	-15 TO +20	+2 TO +9	MILD - 4 TO 9 WEEKS
SOUTHEASTERN CHINA	+17 TO +18	+2 TO +4	WARM - 2 TO 7 WEEKS
PHILIPPINES	+20 TO +30	+2 TO +3	WARM - 12 WEEKS
NORTHEASTERN AUSTRALIA	+30 TO +34	+2 TO +4	WARM - 5 TO 9 WEEKS

GLOBAL PRECIPITATION ANOMALIES

Monthly



The anomalies on this chart are based on approximately 2500 observing stations for which at least 27 days of precipitation observations (including zero amounts) were received or estimated from synoptic reports. As a result of both missing observations and the use of estimates from synoptic reports (which are conservative), a dry bias in the total precipitation amount may exist for some stations used in this analysis. This in turn may have resulted in an overestimation of the extent of some dry anomalies.

In climatologically arid regions where normal precipitation for the one month period is less than 20 mm, dry anomalies are not depicted. Additionally, wet anomalies for such arid regions are not depicted unless the total one month precipitation exceeds 50 mm.

In some regions, insufficient data exist to determine the magnitude of anomalies. These regions are located in parts of tropical Africa, southwestern Asia, interior equatorial South America, and along the Arctic Coast. Either current data are too sparse or incomplete for analysis, or historical data are insufficient for determining percentiles, or both. No attempt has been made to estimate the magnitude of anomalies in such regions.

The chart shows general areas of one month precipitation anomalies. Caution must be used in relating it to local conditions, especially in mountainous regions.

PRINCIPAL PRECIPITATION ANOMALIES - JANUARY 1988

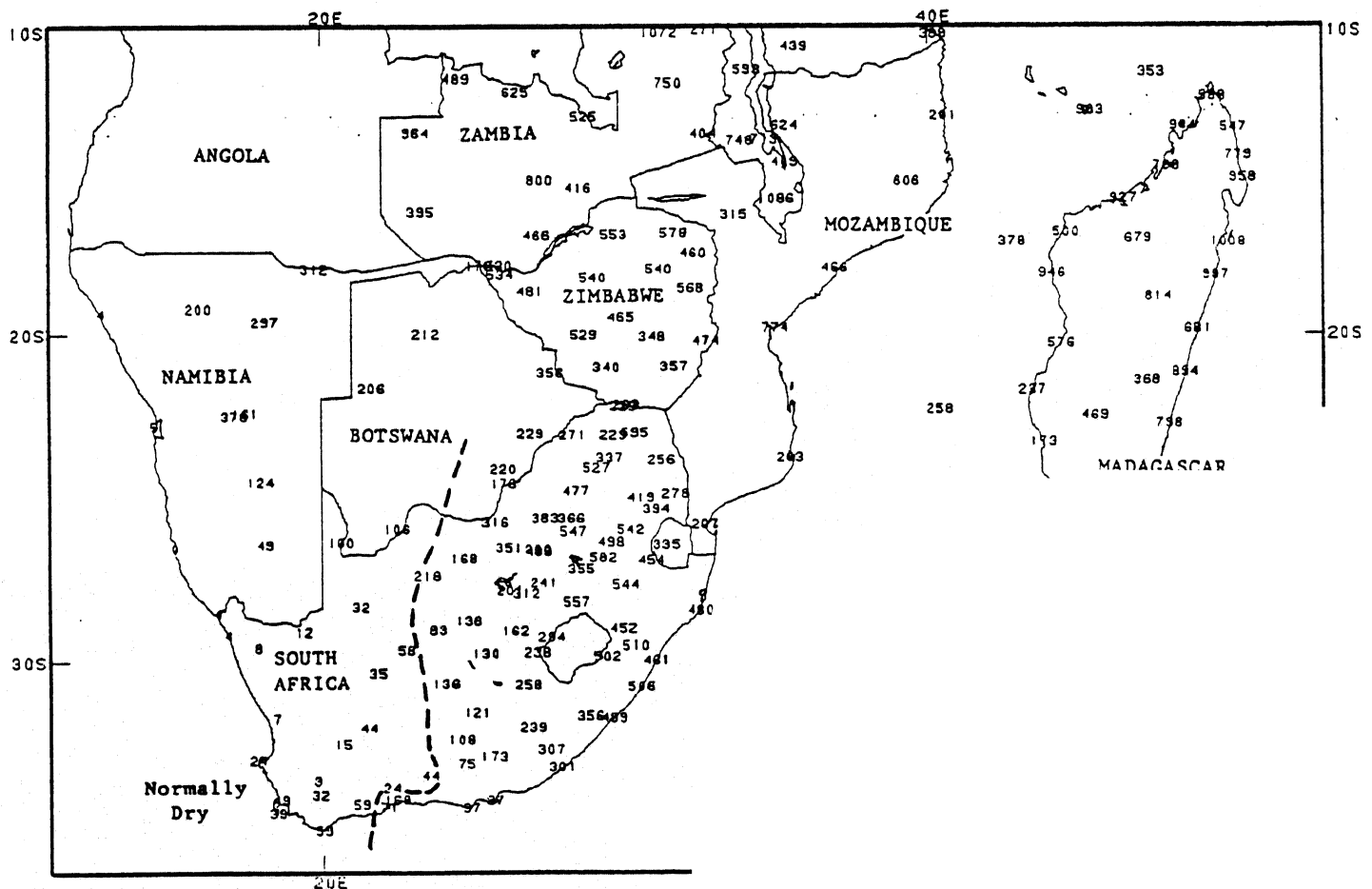
REGIONS AFFECTED	PRECIPITATION TOTAL (MM)	PERCENT OF NORMAL	COMMENTS
SOUTHWESTERN CANADA	0 TO 47	0 TO 43	DRY - 4 TO 21 WEEKS
SOUTHWESTERN ONTARIO	0 TO 13	0 TO 44	DRY - 4 TO 8 WEEKS
EASTERN GREAT LAKES	12 TO 45	22 TO 53	DRY - 4 TO 5 WEEKS
QUEBEC AND VERMONT	18 TO 27	37 TO 45	DRY - 4 WEEKS
NEWFOUNDLAND	0 TO 67	0 TO 45	DRY - 4 WEEKS
NORTHEASTERN FLORIDA	136 TO 161	216 TO 226	HEAVY PRECIPITATION LATE IN JANUARY
COOK ISLANDS	57 TO 153	21 TO 45	DRY - 18 TO 31 WEEKS
FRENCH POLYNESIA	49 TO 134	29 TO 47	DRY - 4 WEEKS
COLOMBIA	0 TO 14	0 TO 41	DRY - 4 TO 5 WEEKS
WEST CENTRAL BRAZIL	442 TO 448	209 TO 210	WET - 6 WEEKS
NORTHERN ARGENTINA	128 TO 296	181 TO 250	HEAVY PRECIPITATION SECOND HALF OF JANUARY
NORTHERN URUGUAY AND ADJACENT ARGENTINA	210 TO 430	199 TO 430	WET - 4 WEEKS
AZORES	20 TO 35	18 TO 25	DRY - 6 WEEKS
FINLAND AND ADJACENT SWEDEN	45 TO 117	155 TO 478	WET - 4 TO 5 WEEKS
WESTERN EUROPE	46 TO 444	155 TO 353	WET - 4 TO 5 WEEKS
UKRAINIAN S.S.R.	8 TO 23	18 TO 49	DRY - 4 TO 6 WEEKS
TURKEY, GREECE, AND LIBYA	4 TO 87	9 TO 50	DRY - 4 TO 11 WEEKS
MOROCCO	63 TO 175	202 TO 448	HEAVY PRECIPITATION MIDDLE OF JANUARY
LIBERIA AND IVORY COAST	0 TO 7	0 TO 25	DRY - 4 TO 5 WEEKS
NAMIBIA	83 TO 215	268 TO 276	HEAVY PRECIPITATION MIDDLE OF JANUARY
CENTRAL SOUTH AFRICA	0 TO 64	0 TO 48	DRY - 4 TO 5 WEEKS
MOZAMBIQUE, ZIMBABWE, AND ADJACENT SOUTH AFRICA	8 TO 53	10 TO 37	DRY - 4 TO 5 WEEKS
NORTHWESTERN SIBERIA	48 TO 60	210 TO 225	HEAVY PRECIPITATION EARLY IN JANUARY
JAPAN	4 TO 133	10 TO 50	DRY - 8 TO 13 WEEKS
RYUKYU ISLANDS	193 TO 265	185 TO 191	WET - 4 WEEKS
NORTH CENTRAL AUSTRALIA	73 TO 181	31 TO 51	DRY - 4 WEEKS
NORTHEASTERN AUSTRALIA	1 TO 133	1 TO 39	DRY - 4 TO 10 WEEKS
VANUATU AND NEW CALEDONIA	269 TO 817	191 TO 263	WET - 4 WEEKS
NEW ZEALAND	9 TO 52	12 TO 37	DRY - 4 TO 7 WEEKS

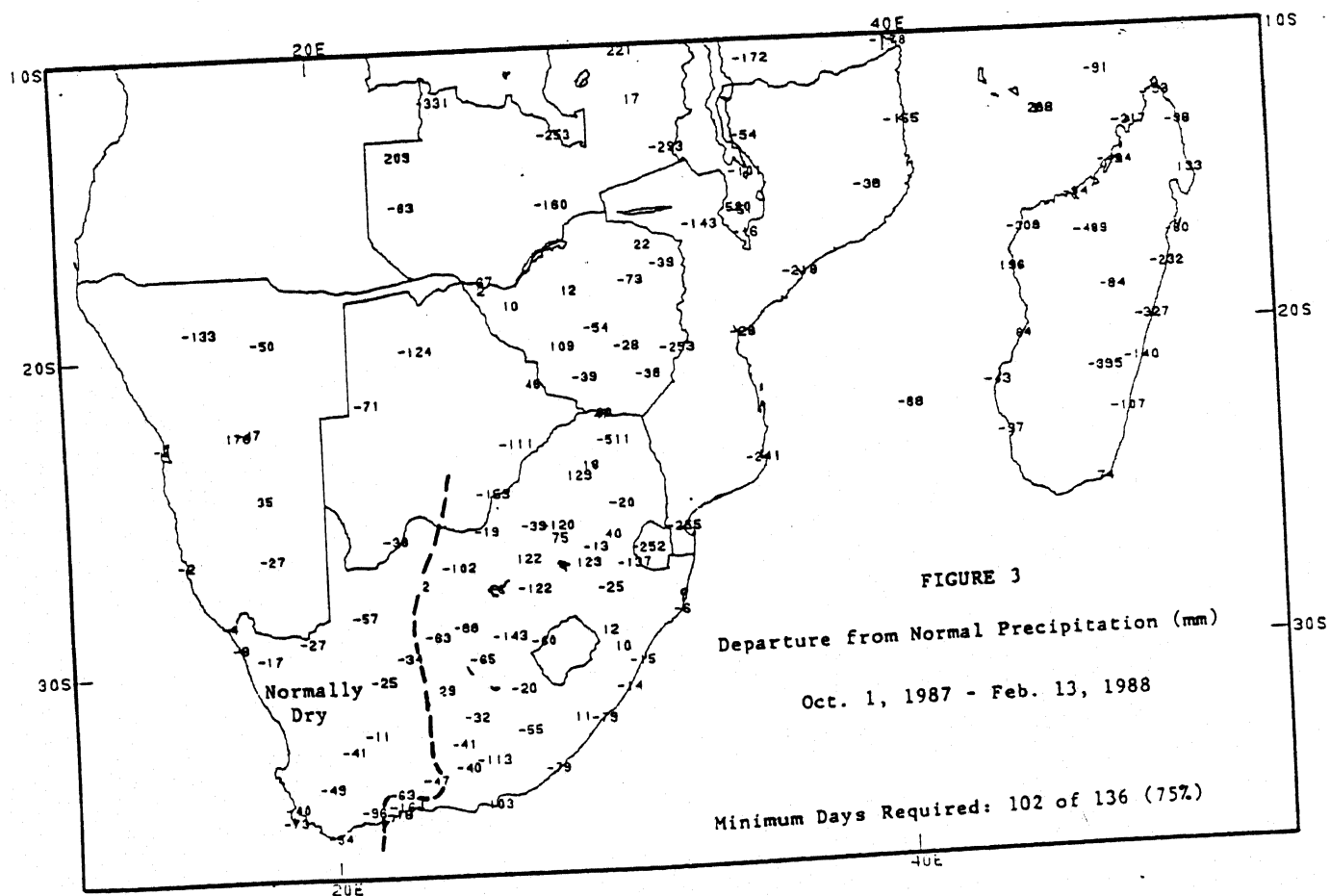
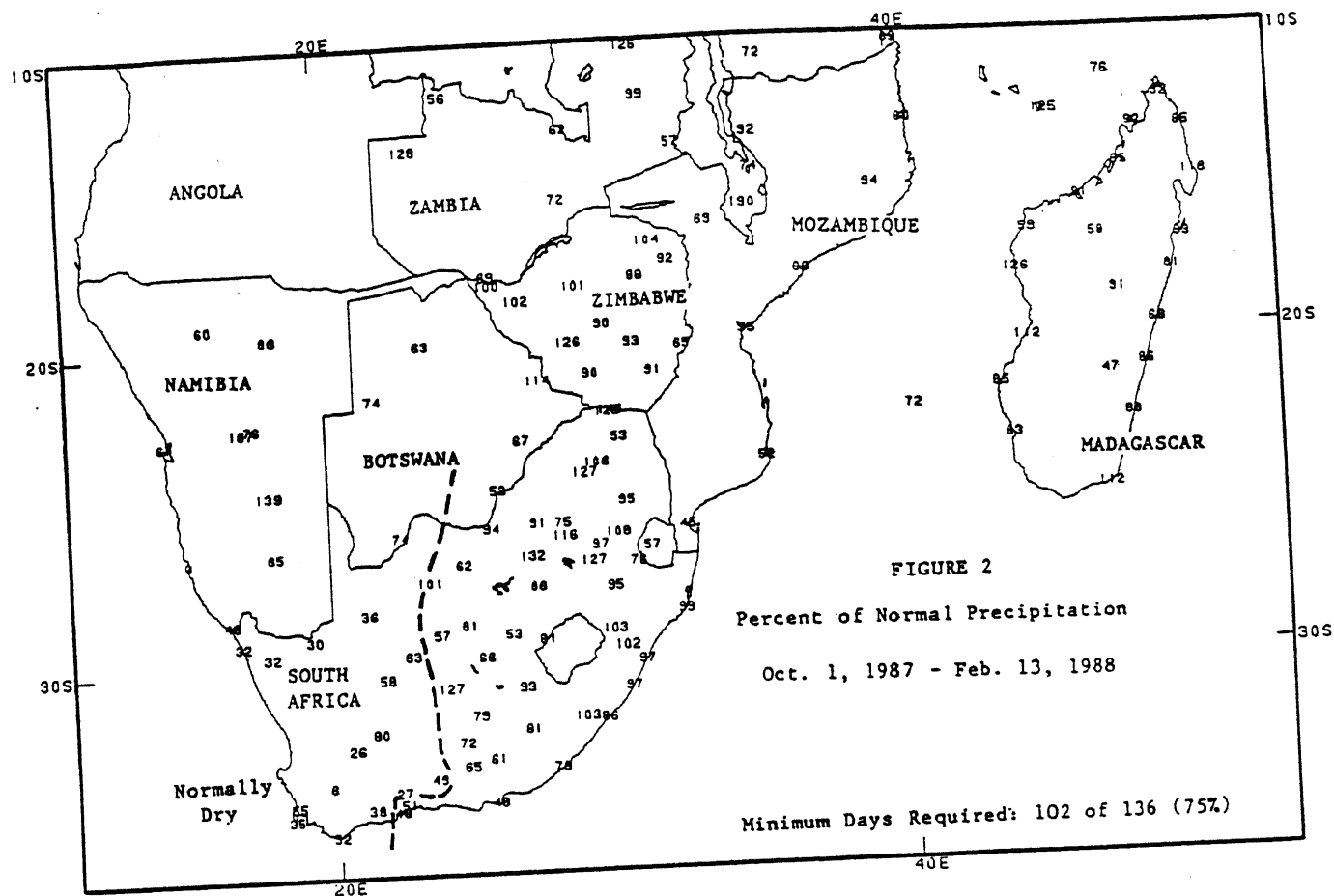
SPECIAL CLIMATE SUMMARY

Climate Analysis Center, NMC
National Weather Service, NOAA

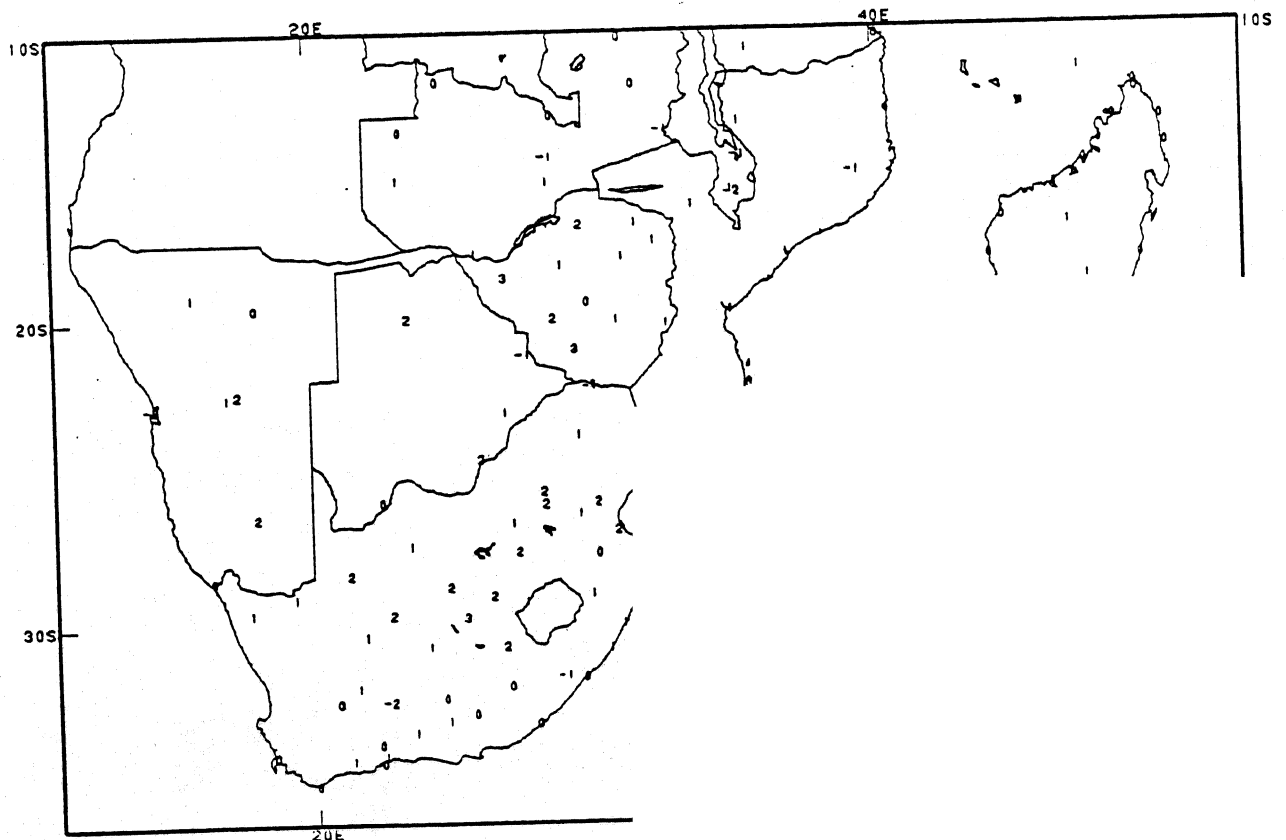
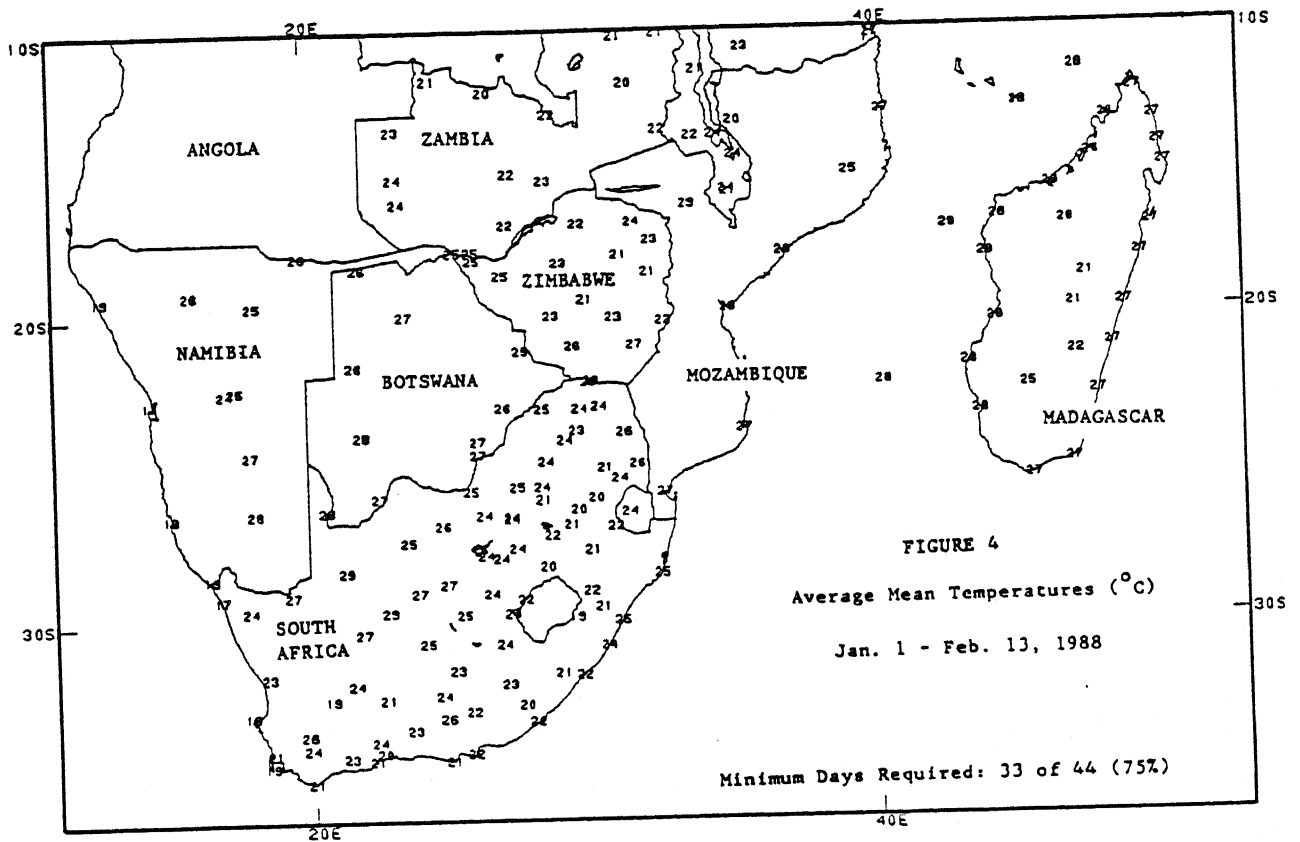
UPDATE ON SEASONAL RAINS IN SOUTHERN AFRICA.

Southern Africa has progressed more than halfway into their normal rainy season (November-March). Since October 1, 1987, most of eastern South Africa and Zimbabwe have accumulated near to slightly above normal precipitation amounts (see Figures 1 and 2). However, these values are somewhat misleading since much of the precipitation came early in the season while January was drier than normal. In contrast, parts of south-central South Africa, Swaziland, Mozambique, and Madagascar have measured below normal seasonal rainfall as maximum departures have ranged from -143 mm, -252 mm, -255 mm, and -489 mm, respectively (see Figure 3). The majority of the accumulated deficits are due to the late start of the rainy season, especially in sections of Mozambique and Madagascar. Recent tropical cyclone activity in the Indian Ocean has brought Madagascar's rainfall amounts closer to normal.





Seasonal temperatures (10/1/87-2/13/88) have been generally near to slightly above normal. However, since January 1, much warmer weather has dominated parts of central and northeastern South Africa and much of Zimbabwe as departures have averaged up to 3°C above normal (see Figures 4 and 5). The recent warm and dry conditions are unfavorable for normal crop development.



SPECIAL CLIMATE SUMMARY

Climate Analysis Center, NMC
National Weather Service, NOAA

EL NINO SOUTHERN OSCILLATION (ENSO) DIAGNOSTIC ADVISORY 02/88

issued by

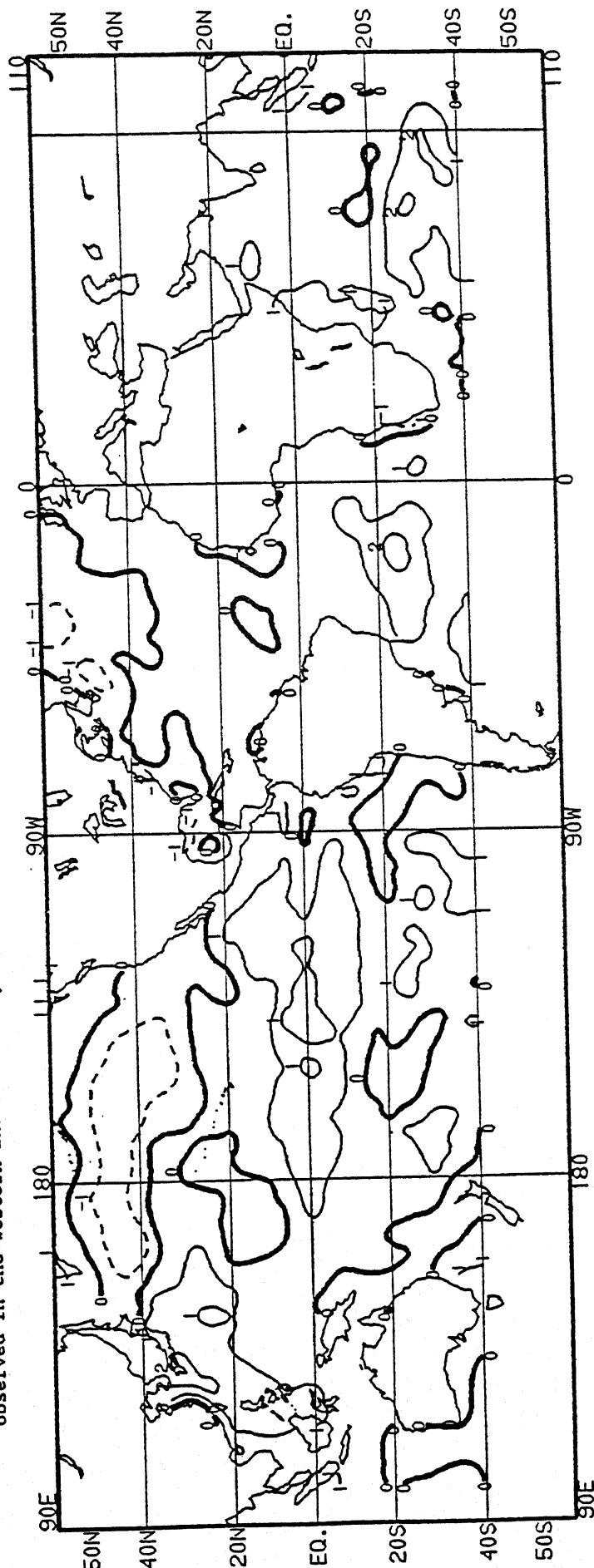
The Climate Analysis Center, NMC
National Weather Service, NOAA

February 10, 1988

Most tropical Pacific indices and anomaly patterns indicate a continued trend towards normal. Rather strong easterly 850 mb zonal wind anomalies prevailed throughout the basin for the first time in more than a year. Positive sea surface temperature anomalies decreased in all three index regions (Nino 1+2, Nino 3 and Nino 4). The areal extent of SST anomalies greater than $\pm 1^{\circ}\text{C}$ also decreased noticeably from that observed during the September-November 1987 period.

In January 1988 Tahiti registered the largest positive sea level pressure anomaly in more than two years. Darwin also had a fairly large positive anomaly, but due to the in-phase nature of the pressure fluctuation at the two stations the Southern Oscillation Index was close to zero (-0.2).

Stronger than normal atmospheric convection continued to be observed along the equator in the vicinity of the date line, while weaker than normal convection occurred over northern and eastern Australia, New Guinea and the Philippines. Thus, while most indices for January indicated a continued trend towards normal, anomalous convective activity characteristic of warm episodes continued to be observed in the western and central equatorial Pacific.



Anomalous Sea Surface Temperatures ($^{\circ}\text{C}$)

January 1988

